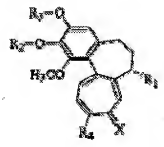
AMENDMENTS TO THE CLAIMS

1. (original) A tricyclic derivative represented by the following <Formula 1> or pharmaceutically acceptable salts thereof.

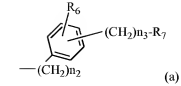
<Formula 1>

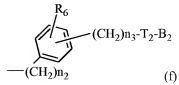


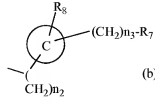
(Wherein,

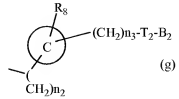
(1) R_1 is $-T_1-B_1$;

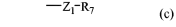
in which T_1 is $-X_1-$, $-X_1-C(X_2)-$, $-N(R_5)-$, $-N(R_5)C(X_2)-$, $-N(R_5)S(O)n_1-$, $-N(R_5)C(O)-X_1-$ or $-N(R_5)C(X_1)NH-$, in that X_1 and X_2 are each O or S, R_5 is each H or $C_1 \sim C_5$ alkyl group, n_1 is an integer of 1~2; and B_1 is selected from a group consisting of following (a) ~ (j),

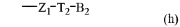

(a)

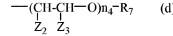

(f)


(b)


(g)


(c)


(h)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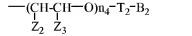
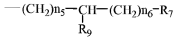
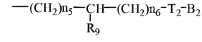
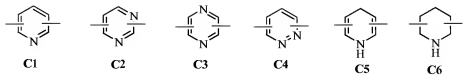

(i)


(e)


(j)

Wherein, R_6 and R_8 are each H, halogen, hydroxy, $C_1 \sim C_3$ alkoxy, amino, nitro, cyano or $C_1 \sim C_3$ lower alkyl group; R_7 and R_9 are each independently halogen, hydroxy, mercapto, -ONO, $-ONO_2$ or SNO, in which R_7 and R_9 are same or different;


is $C_5 \sim C_6$ membered saturated or unsaturated heterocyclic ring containing 1~2 of hetero atom, in which the hetero atom is selected from a group consisting of O, S and N, preferably,



,

more preferably, C1 (pyridyl group) substituted at position 2 and 6 or position 2 and 5, C7 (pyrrolyl group) substituted at position 2 and 5 or position 2 and 4, C11 (thiophenyl group) or C12 (furanyl group); Z_1 is $C_1 \sim C_{10}$ straight-chain or branched-chain alkyl group, preferably $C_2 \sim C_5$ straight-chain or branched-chain alkyl group or cycloalkyl group having substituent; Z_2 and Z_3 are each independently H or methyl group, in which Z_3 is H when Z_2 is methyl group, Z_2 is H when Z_3 is methyl group; T_2 is $-X_1-$ or $-X_1-C(X_2)-$, in that X_1 and X_2 are each independently O or S; B_2 is selected from a group consisting of said (a), (b), (c), (d) or (e); n_2 is an integer of 0~3, n_3 is an integer of 0~5, n_4 is an integer of 1~5, n_5 and n_6 are each independently an integer of 1~6;

(2) R_2 and R_3 are each independently H, $-PO_3H_2$, phosphonate, sulfate, $C_3 \sim C_7$ cycloalkyl, $C_2 \sim C_7$ alkenyl, $C_2 \sim C_7$ alkynyl, $C_1 \sim C_7$ alkanoyl, $C_1 \sim C_7$ straight-chain or branched-chain alkyl or sugar, in which sugar is a monosaccharide such as glucuronyl, glucosyl or galactosyl;

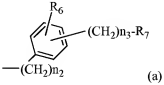
(3) R_4 is OCH_3, SCH_3 or $NR_{10}R_{11}$, in which R_{10} and R_{11} are each independently H or $C_{1\sim5}$ alkyl;

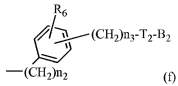
(4) X is O or S.)

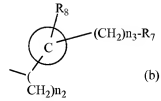
2. (original) The tricyclic derivative or pharmaceutically acceptable salts thereof as set forth in claim 1, wherein the compound of <Formula 1> is characterized as follows:

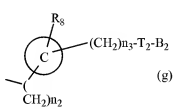
(1) R_1 is $-T_1-B_1$;

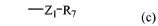
in which T_1 is $-N(R_5)C(X_2)-$, $-N(R_5)C(O)-X_1-$ or $-N(R_5)C(X_1)NH-$, in that X_1 and X_2 are each O, R_5 is each H or $C_1 \sim C_5$ alkyl group; and B_1 is selected from a group consisting of following (a) ~ (j),

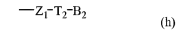

(a)

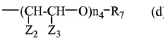

(f)

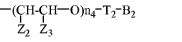

(b)

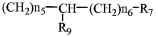

(g)

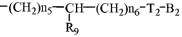

(c)


(h)


(d)

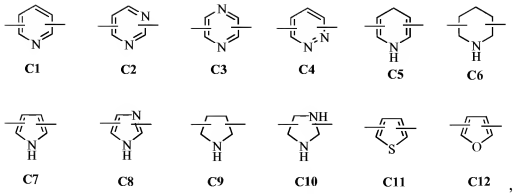

(i)


(e)


(j)

Wherein, R_6 and R_8 are each H, halogen, hydroxy, $C_1 \sim C_3$ alkoxy, amino, nitro, cyano or $C_1 \sim C_3$ lower alkyl group; R_7 and R_9 are each independently halogen, hydroxy, mercapto(thiol), -ONO, $-ONO_2$ or SNO, in which R_7 and R_9 are same or different;


is $C_5 \sim C_6$ membered saturated or unsaturated heterocyclic ring containing 1~2 of hetero atom, in which the hetero atom is selected from a group consisting of O, S and N, preferably,



more preferably, C1 (pyridyl group) substituted at position 2 and 6 or position 2 and 5, C7 (pyrrolyl group) substituted at position 2 and 5 or position 2 and 4, C11 (thiophenyl group) or C12 (furanyl group), a bond of substituents may be at symmetrical or asymmetrical position; Z_1 is $C_1 \sim C_{10}$ straight-chain or branched-chain alkyl group, preferably $C_2 \sim C_5$ straight-chain or branched-chain alkyl group or cycloalkyl group having substituent; Z_2 and Z_3 are each independently H or methyl group, in which Z_3 is H when Z_2 is methyl group, Z_2 is H when Z_3 is methyl group; T_2 is $-X_1-$ or $-X_1-C(X_2)-$, in that X_1 and X_2 are each O or S; B_2 is selected from a group consisting of said (a), (b), (c), (d) or (e); n_2 is an integer of 0~3, n_3 is an integer of 0~5, n_4 is an integer of 1~3, n_5 and n_6 are each independently an integer of 1~3;

(2) R_2 and R_3 are each independently $C_3 \sim C_7$ cycloalkyl or $C_1 \sim C_7$ alkyl;

(3) R_4 is SCH_3 or OCH_3;

(4) X is O or S.

3. (original) The tricyclic derivative or pharmaceutically acceptable salts thereof as set forth in claim 1, wherein the tricyclic derivative comprises:

1) 6-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen -7-yl]-nicotineamide;

2) 5-nitrooxymethyl-furan-2-carboxylic acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

3) N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methyl-sulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;

4) N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methyl-sulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;

5) 6-nitrooxymethyl-pyridine-2-carboxylic acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

6) 5-nitrooxymethyl-thiophene-2-carboxylic acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

7) N-[(7S)-3-cyclopentyloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen -7-yl]-3-nitrooxymethyl-benzamide;

8) N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-2-fluoro-3-nitrooxymethyl-benzamide;

9) 2-fluoro-N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;

10) 2-fluoro-3-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

11) N-[(7S)-3-cyclopentyloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-2-fluoro-3-nitrooxymethyl-benzamide;

12) 3-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

13) N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-fluoro-5-nitrooxymethyl-benzamide;

14) 3-fluoro-N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-5-nitrooxymethyl-benzamide;

15) N-[(7S)-3-cyclopentyloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-fluoro-5-nitrooxymethyl-benzamide;

16) 4-fluoro-3-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

17) 2-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

18) 3-hydroxy-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

19) 3,5-*bis*-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

20) 2-hydroxy-4-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

21) 4-nitrooxymethyl-thiophene-2-carboxylic acid [(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

22) 3-nitrooxymethyl-thiophene-2-carboxylic acid [(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

23) 2-(3-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide;

24) 3-(2-nitrooxy-ethyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

25) 3-nitrooxybenzoic acid-5-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

26) 4-nitrooxybutyric acid-5-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

27) 3-nitrooxymethyl-benzoic acid-6-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

28) 4-nitrooxybutyric acid-6-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

29) 3-nitrooxymethyl-benzoic acid-2-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

30) 4-nitrooxybutyric acid-2-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

31) 3-nitrooxymethyl-benzoic acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

32) 4-nitrooxybutyric acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

33) 3-nitrooxymethyl-benzoic acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-benzylester;

34) 4-nitrooxybutyric acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-benzylester;

35) 2-nitrosothio-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

36) 3-nitrosooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

37) 3-fluoro-5-nitrosooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

38) 3-nitrosothiomethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

39) 3-fluoro-5-nitrosothiomethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

40) 3-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3,10-tetramethoxy-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

41) 3-nitrooxymethyl-N-methyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

42) 3-fluoro-N-methyl-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

43) 2-(3-fluoro-5-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide; or

44) 2-(2-fluoro-5-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide.

4. (canceled)

5. (original) An anticancer agent or anti-proliferation agent containing tricyclic derivatives of any one of claim 1 – claim 3 or pharmaceutically acceptable salts thereof as an effective ingredient.

6. (original) An angiogenesis inhibitor containing tricyclic derivatives of any one of claim 1 –

claim 3 or pharmaceutically acceptable salts thereof as an effective ingredient.